



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,407	02/23/2005	Jun-ichi Kani	14321.66	7501
22913	7590	09/19/2007	EXAMINER	
WORKMAN NYDEGGER 60 EAST SOUTH TEMPLE 1000 EAGLE GATE TOWER SALT LAKE CITY, UT 84111			PHAN, HANH	
		ART UNIT	PAPER NUMBER	
		2613		
		MAIL DATE	DELIVERY MODE	
		09/19/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/525,407	KANI ET AL.
	Examiner	Art Unit
	Hanh Phan	2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 23 February 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-9 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

Art Unit: 2613

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figures 1A-1C, 2A-2C, 3 and 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Art Unit: 2613

4. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prior Art Figures 3 and 4 in view of Lee et al (Pub. No.: US 2005/0286895).

Regarding claims 1 and 7, referring to Prior Art Figures 3 and 4, the Prior Art Figure 3 teaches a wavelength-division multiple access system having a center apparatus OLT 50, n optical network units ONU1 to ONUn, and m optical network units ONUn+1 to ONUn+m, arranged via a wavelength multi/demultiplex apparatus 60, the OLT 50 and the wavelength multi/demultiplex apparatus 60 being connected together in a multiplex section via multiplex section optical fibers 1 and 2, the wavelength multi/demultiplex apparatus 60 and the ONUs being connected together in an access section via access section optical fibers 3 and 4, downlink optical signals Da and Db, from the OLT 50 to the ONUs and uplink optical signals Ua and Ub from the ONUs to the OLT 50 being transmitted through the multiplex section using wavelengths assigned to the respective ONUs while multiplexing the wavelengths, the wavelength multi/demultiplex apparatus 50 carrying out wavelength multiplexing or demultiplexing for bidirectional transmissions, characterized in that a wavelength band Da (λ_{d1} to λ_{dn}) for downlink optical signals corresponding to the n ONUs, a wavelength band Ua (λ_{u1} to λ_{un}) for uplink optical signals corresponding to the n ONUs, a wavelength band Db (λ_{dn+1} to λ_{dn+m}) for downlink optical signals corresponding to the m ONUs, and a wavelength band Ub (λ_{un+1} to λ_{un+m}) for uplink optical signals corresponding to the m ONUs are set different from one another; and

each of the ONUs comprises downlink optical signal receiving means 72 for receiving a downlink optical signal of one of the wavelengths λ_{d1} to λ_{dn+m} in the

Art Unit: 2613

wavelength bands Da and Db which wavelength is assigned to the ONU and uplink optical signal transmitting means 73 for transmitting an uplink optical signal of one of the wavelengths λ_{u1} to λ_{un+m} in the wavelength bands Ua and Ub which wavelength is assigned to the ONU.

The Prior Art Figure 3 differs from claims 1 and 7 in that it fails to teach the wavelength bands Ua and Ub are set adjacent to each other, and the wavelength bands Ua and Da or the wavelength bands Ub and Db are set adjacent to each other. Lee et al, from the same field of endeavor likewise teaches wavelength division multiplexing passive optical network (Figure 1). Lee et al further teaches an downlink optical signal within a first broadband including wavelength bands or the downlink optical wavelengths are set adjacent to each other, and an uplink optical signal within a second broadband including wavelength bands or the uplink optical wavelengths are set adjacent to each other and the downlink optical signals and uplink optical signals are set adjacent each other (i.e., Figure 1, page 2, paragraphs [0015]-[0019], page 3, paragraphs [0029]-[0033] and page 4, paragraphs [0034]-[0042]). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the wavelength bands Ua and Ub are set adjacent to each other, and the wavelength bands Ua and Da or the wavelength bands Ub and Db are set adjacent to each other as taught by Lee et al. One of ordinary skill in the art would have been motivated to do this since allowing reducing the power loss of the signal and achieving maximal energy efficiency.

Regarding claim 2, the combination of Prior Art Figures 3 and 4 and Lee et al teaches the wavelength bands Da and Db for the downlink optical signals and the wavelength bands Ua and Ub for the uplink optical signals are set on the wavelength axis in order of the wavelength bands Da, Ua, Ub, and Db or the wavelength bands Db, Ub, Ua, and Da (i.e., Figure 1 of Lee et al, page 2, paragraphs [0015]-[0019], page 3, paragraphs [0029]-[0033] and page 4, paragraphs [0034]-[0042]).

Regarding claim 3, the combination of Prior Art Figures 3 and 4 and Lee et al teaches the wavelength bands Da and Db for the downlink optical signals and the wavelength bands Ua and Ub for the uplink optical signals are set on the wavelength axis in order of the wavelength bands Ua, Ub, Db, and Da or the wavelength bands Da, Db, Ub, and Ua (i.e., Figure 1 of Lee et al, page 2, paragraphs [0015]-[0019], page 3, paragraphs [0029]-[0033] and page 4, paragraphs [0034]-[0042]).

Regarding claim 4, the combination of Prior Art Figures 3 and 4 and Lee et al teaches the wavelength bands Da and Db for the downlink optical signals and the wavelength bands Ua and Ub for the uplink optical signals are set on the wavelength axis in order of the wavelength bands Ub, Ua, Da, and Db or the wavelength bands Db, Da, Ua, and Ub (i.e., Figure 1 of Lee et al, page 2, paragraphs [0015]-[0019], page 3, paragraphs [0029]-[0033] and page 4, paragraphs [0034]-[0042]).

Regarding claims 5, 6, 8 and 9, the combination of Prior Art Figures 3 and 4 and Lee et al teaches a connection is made to each ONU in the access section via two access section optical fibers, the OLT is configured to multiplex the wavelengths of and transmits optical carriers for uplink signals in the wavelength bands Ua and Ub (λ_{U1} to

Art Unit: 2613

λ_{un+m}) and the downlink optical signals of the wavelength bands Da and Db (λ_{d1} to λ_{dn+m}) to the multiplex section optical fiber, the wavelength multi/demultiplex apparatus is configured to separate the optical carriers for uplink signals from the downlink optical signals, the optical carriers for uplink signals and the downlink optical signals being input via the multiplex section optical fiber and having the wavelengths corresponding to the ONUs, to output the resultant signals to the ONUs via one of the access section optical fibers, and to multiplex the uplink optical signals input through the other access section optical fiber and having the wavelengths corresponding to the ONUs, to output the resultant signals to the multiplex section optical fiber, and each of the ONUs comprises a wavelength band multiplexer which is characterized by separating the wavelength bands Ua and Ub for the uplink optical signals from the wavelength bands for the downlink optical signals and which separates an optical carrier for an uplink signal from a downlink optical signal, the optical carrier for the uplink signal and the downlink optical signal being input via the one of the access section optical fiber and having the wavelengths corresponding to the ONU, and an optical modulator which operates as the uplink optical signal transmitting means and which modulates the optical carrier for the uplink signal separated by the wavelength band demultiplexer and having the wavelength corresponding to the ONU to transmit the resultant signal to the other access section optical fiber (i.e., see Prior Art Figure 1 and Figure 1 of Lee et al, page 2, paragraphs [0015]-[0019], page 3, paragraphs [0029]-[0033] and page 4, paragraphs [0034]-[0042]).

Art Unit: 2613

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.



HANH PHAN
PRIMARY EXAMINER